

DROUGHT-BUSTER

A Decade Later

By Ron Wilson

You can debate the day when things swung the other direction, when drought of the late 1980s and early 1990s finally loosened its hold on North Dakota and slunk back to wherever it is troublesome things return.

To Mike Johnson, it was July 15, 1993.

"I got it on video ... all the rain and hail that destroyed my roof, gutters, garden and flooded my basement," said Johnson, waterfowl biologist for the North Dakota Game and Fish Department. "The drought was over."

To Greg Power, the drought retired days earlier.

"We came out of the North Dakota Heritage Center and it was just pouring rain," said Power, Department fish management/research section leader. "The drought-buster began, it's safe to say, the end of June and continued."

And what a drought-buster it was.

Using Bismarck as an example, nearly 14 inches of rain fell in July 1993, making it the wettest July in the Capital City in 128 years of record-keeping, according to National Weather Service data.

Bismarck's second wettest July – a wimpy 7.31 inches by comparison, but a bunch of rain nonetheless – came in 2001. Average precipitation for July in Bismarck is 2.38 inches, Weather Service statistics show.

"It was like someone turned on a switch and the drought was over," said Harlyn Wetzel, meteorologist for the National Weather Service in Bismarck. "And it just wasn't a local effect, either."

Precipitation totals for July 1993 from Marmarth to Stanley to Devils Lake to Courtenay were nine inches or more.

"Normally, you don't turn a drought around in one month," said Charlene Prindiville, Weather Service hydrologist. "Normally, to go in and out of a drought, it takes a long time."

It's difficult to use the word "normal" and North Dakota's weather the last decade or so in the same sentence. The string of wet years starting in 1993 is anything but "normal."

"Some of the areas of water we have now are huge ... roads have been flooded probably for the first time since they were built," Johnson said. "The water is higher than anybody had ever seen since settlement."

Ten years later – even after being dry in parts of the state the last couple of summers – we're still seeing the affects.

During the drought of the late 1980s and early 1990s, fisheries biologists with the North Dakota Game and Fish Department were managing far fewer waters than today.

"We lost quite a few lakes to drought, and we were managing only about 100 lakes by 1993," Power said. "Today, that number is at about 325."

When the spigot was opened a decade ago, tens of thousands of new acres of water followed, providing model habitat for some species of fish. Vegetation that stood high and dry for years and was suddenly inundated, provided ideal spawning habitat and nutrient-rich conditions for northern pike and yellow perch.

"Before the water came back, some of these perch lakes just didn't exist," Power said. "Dry Lake (McIntosh County) went

Annual precipitation for Bismarck:

1993 - 26.99 inches
(third wettest on record)

1999 - 26.45 inches
(fourth wettest on record)

1998 - 23.70 inches
(sixth wettest on record)

2000 - 23.04 inches
(ninth wettest on record)

from a deer meadow to a 30-foot deep lake and, for a few years, was a world-class perch fishery."

By the late 1990s, Power said, central and eastern North Dakota were dotted with waters that boasted some of the best perch fishing – in terms of quantity and size – ever. Public interest in fishing for yellow perch doubled between 1970 and 2000. In 1999-2000, four of the top five lakes hit hardest by ice anglers pursuing perch were new waters.

"We feel safe to say that, in geological time, we have never had so many pike and perch in the state," Power said. "There have never been so many fishing opportunities. But while we're still feeling the benefits of those wet years, some of these waters are on the downhill side of things."

With no new vegetation being flooded, they're not as productive as they once were, Power said. Plus, a lack of sufficient precipitation the last couple of years has dropped lake levels to the point where fish kills in

winter and summer are a concern.

"There are some lakes south and east of Bismarck, some of the new lakes, that are close to losing their fisheries," he said.

"Anyone in the fish or duck world likes rain, especially in the climate we live in. We need more rain."

Some of the rain Power was hoping for fell over much of the state in May, adding new hope to fisheries teetering on the edge.

The drought was also tough on Lake Sakakawea and its inhabitants – rainbow smelt and the fish that eat them like wall-eye and salmon – dropping the giant reservoir's water level to an all-time low of 1,815 feet above mean sea level in 1991. The lake did come up about 12 feet that summer, flooding vegetation that harbored spawning forage fish. But water levels headed south again in 1992.

In February 1993, Sakakawea was scary-low again at just two feet higher than the all-time low. Then the rains returned to North Dakota and farther downstream, and the big lake rose to 1,837 msl that summer.

"We were getting inflows into the lake and not much water was being released from the dam, so the water started to climb in Sakakawea," Power said.

Water releases from Garrison Dam were reduced that summer because of serious flooding much farther downstream, adding to Sakakawea's 20-foot rise in just a matter of months.

It wasn't an immediate turnaround when water returned in 1993, but it set the stage for the following year.

What a difference a few years make. In 1990, Lake Oahe was nowhere to be seen at Beaver Bay, but the lake made a return in 1993, the year North Dakotans put the drought in their rearview mirrors.

Beaver Bay 1990



Craig Bhirle

Beaver Bay 1993



Craig Bhirle

"With all the newly-flooded vegetation, the pike year-class in 1994, for example, was outstanding," Power said.

Pike today flirting with the 20-pound mark were likely hatched in 1994.

"We're going to see the impact of the water coming back in 1993, and the year-class that followed, for years to come," Power said. "When someone catches a 30-pound pike in 2005, it will be tied to those events."

Fishing license sales, understandably, took a hit during the drought years, but climbed from 1994-2001, before flattening out. In 1992, for example, resident fishing license sales were at 100,256, and peaked at 140,113 in 2000.

"Those anglers who bought a license also fished three more times as often as they did during the drought years," Power said. "The fishing effort went up dramatically because there were more opportunities and because the fishing was pretty good."

What was good for fish wasn't necessarily good for some of North Dakota's ground-nesting birds unable to ward off the chilling minuses of untimely weather. The affects of a cool, wet June and July a decade ago are still being seen in today's Hungarian partridge population.

"Hungarian partridge numbers dropped drastically in 1993, and you could speculate that the rainfall and colder temperatures during nesting had a lot to do with it," said Jerry Kobriger, Department upland game management supervisor in Dickinson. "Our Hun numbers today aren't even close to what they were before 1993."

Two of the driest Julys on record for Bismarck:

1988 – .55 inches

1991 – .65 inches

Two wettest Julys on record for Bismarck:

2001 – 7.31 inches

1993 – 13.75 inches

The bulk of Bismarck's rain in July 1993 fell on three separate days:

July 1 – 2.70 inches

July 15 – 4.32 inches

July 22 – 2.20 inches

Bismarck recorded measurable amounts of rain 21 of 31 days in July 1993.

From 1992-1995, partridge populations dropped nearly two thirds in the state, and have been slow to rebound.

"When Huns were first introduced to this country, they spread like wildfire," Kobriger said. "I really can't tell you why they haven't recovered more than they have."

North Dakota's weather, meteorologists say, can be so radical – from bone dry to soggy to something in between – because we're so far removed from an ocean, which has a moderating affect on the weather. In weatherman-speak, the state's climate is continental in nature.

And if you think the weather gurus, with all their fancy technology and piles of data, can predict wet and dry cycles, you'd be wrong.

"People have looked into anything and everything to try and figure out wet and

dry cycles," Wetzel said. "And if you do ever figure it out, you'll never have to work another day in your life."

Average annual precipitation for Bismarck is 16.51 inches. From 1993-2002, the average was bested eight times, starting with a high of 26.99 inches in 1993, and ending with 21.34 inches in 2001. Just 11.33 inches of precipitation was recorded in 2002.

While the fickle nature of the weather on the Northern Plains is nothing new to scientists who monitor ducks or manage fish, there are those times when conditions are just boggling. The drought of late 1980s and early 1990s, and the run of wet weather starting in 1993, are two such head-scratchers.

When drought hit North Dakota, it didn't fade away after two to three years, but instead kept getting drier and drier. It was so dry for so long, catfish in the state had wood ticks, Johnson joked.

"The drought hung on for so long, it became a curiosity to people not living here," he said. "Media from around the world wanted pictures of the drought, of dry, crack land."

Then in June and July of 1993, more than 18 inches soaked parts of the state.

"We never thought at the time it would last eight or nine years," Johnson said. "We'd never seen that before."

To Department waterfowl biologists who count water areas along set routes in the state each spring, the drought lasted from 1987-1993. In 1990, the mid-May pond count was the lowest – only 141,000 wet

Rice Lake Wildlife Management Area in Burleigh County, like a lot of wetlands in the state, acts as sort of a weather gauge for passersby. In 1990, and earlier this spring, the large wetland showed the affects of little precipitation. In 1993 and 1998, however, heavy summer rains transformed the wetland into a favorite spot for waterfowl and hunters.



Rice Lake 1990



Rice Lake 1993

areas – since surveys began in 1948. In 1999, the count had increased greatly to 1.68 million water areas, the highest in more than 50 years.

It's the water that first attracts waterfowl to North Dakota – typically the greatest producer of ducks in the lower 48 states – and keeps them here during the breeding season. Duck numbers in the state, understandably, declined during the drought.

"The important thing to remember about ducks in North Dakota is that their numbers not only relate to how much water we have here, but how much water there is elsewhere," Johnson said. "Even during dry times, we can have a lot of birds if it's dry elsewhere."

In 1991, the breeding duck index was down – like the water in the state – to just 768,000 birds. The lowest on record was 590,000 birds in 1959. But in 2002, waterfowl pair counts had jumped to 5.4 million.

While the return of water to North Dakota was essential to the rise in duck numbers, there was more in play than that. Like the availability of more than 3 million acres of nesting cover found in CRP, and a decline in predators. Mink populations, for instance, fell during the drought because of a lack of water, and red fox struggled as mange ran through the wild canine population.

"We had the recipe in place for ducks to be successful in North Dakota," Johnson said. "And since we get quite a bit of homing, the birds were surviving, and coming back year after year. We were able to build on that."

Canada geese, a species slow to rebound

According to the weekly Palmer Drought Severity Index, all of North Dakota was in drought status – some areas being worse than others – through the end of April 2003. Yet, several May rainfalls later, the dry conditions mostly faded. For May, nearly 7 inches of rain was recorded in southeast North Dakota, followed by 2.98 inches in Minot, 2.29 inches in Williston, 2.64 in Dickinson, 5.27 in Bismarck, and 3.06 inches in Rolla.

from recovery efforts started in the early 1970s in North Dakota, also benefited from the water's return. With the water came muskrats and muskrat lodges, or ready-made places for Canada geese to nest.

"When the water and the muskrats came back, Canada goose numbers just went through the roof," Johnson said.

If anything good came out of the drought it was that the state's duck habitat did go temporarily dry.

"When the water came back, the wetlands recharged and they came shooting back big time," Johnson said. "The duck habitat became very fertile and very productive again."

Refilled wetlands are productive, scientists say, because of the release of nutrients from bottom sediment. Also, invertebrates lying dormant come to life, along with the

seeds of aquatic vegetation.

"The wet and dry cycles are important," Johnson said. "The nature of the Prairie Pothole Region is the dynamic cycle of water regimes that keep things fertile and productive."

Without a shift in cycles, wetlands flush in water for long stretches may be nothing more than wet spots to waterfowl.

"What I've noticed is that a lot of our wetlands that once had a lot of waterfowl use, don't have that same kind of use anymore," Johnson said. "They've been wet too long. There's just no food in them for ducks anymore."

Years of wet weather also ushered water from the banks of lakes into downstream wetlands, introducing the smaller waters to everything from minnows to northern pike.

Johnson said scientists think there might be a link in minnows in wetlands and the decline in scap populations, as the former are eating the invertebrates the latter need to survive.

"And the northern pike that have been flushed into these wetlands certainly aren't good on ducklings," he said. "This just points out that everything in nature is tied together. There is no free lunch out there."

It's only a guess what's in store for the months ahead – pike eating ducklings in wetlands flush with water, or fewer lakes, lower waterfowl limits, and dry, cracked earth. Whatever weather surfaces, there's a good chance it won't be "normal."

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